

**Practice: 345 - Res. & Tillage Mgt, Mulch-till****Scenario: #1 - Mulch till-Basic****Scenario Description:**

The amount, orientation, and distribution of crop residue is managed to maintain 30-75% residue cover on the soil surface after planting. Soil-disturbing activities used to grow crops in systems where the entire field surface is tilled prior to planting are reduced. A chisel plow or other secondary tillage equipment is used prior to planting to limit the soil-disturbing activities. Producer time is spent learning to manage and implement the mulch till system. All residue is uniformly distributed over the entire field. Residues are not burned or removed. The RUSLE2 model will be used to review the farming operation and determine if enough residue is being retained, throughout the rotation, to keep soil loss below T. The producer will then remove operations, or select alternate operations, to reduce erosion below T.

Associated Practice(s): Conservation Crop Rotation (328), Cover Crop (340), Residue Management, No Till/Strip Till/Direct Seed (329), Residue Management, Seasonal (344), Residue Management, Ridge Till (346)

**Before Situation:**

Row crops such as corn and soybeans are harvested in mid to late fall and are disked immediately following harvest leaving 30% or less residue cover on the soil surface resulting in exposed soil subject to soil erosion from wind and water during the fall, winter, and early spring. Over the winter residue degrades and sediment/nutrient runoff from fields increases. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Spring tillage and seedbed preparation activities occur as early as possible in the late winter and early spring. Weed control is accomplished primarily through tillage, requiring multiple operations. These periods of intensive tillage have led to excessive soil loss, often above the Soil Loss Tolerance (T), due to the loss of critical crop or weed residue. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue monocultures, and long periods of bare soil.

**After Situation:**

The amount, orientation, and distribution of crop residue is managed to maintain 30-75% residue cover after planting. Mulch tillage management is applied to all cropland and other lands where crops are planned. The residue that remains on the soil surface provides soil cover during late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced. Wind erosion is reduced by standing residues. Winter weeds or the cover crop is terminated with tillage, a roller-crimper, shredding, or a combination of these methods prior to spring planting as late as feasible. Over time, soil health is improved due to the additional biomass, ground cover, soil infiltration, and plant diversity in the cropping system. Production of adequate amounts of crop residue necessary for this practice can be enhanced by selection of high residue producing crops and crop varieties in the rotation (practice 340 and 328). Mulch till may be practiced continuously throughout the crop sequence or managed as part of a residue management system.

**Scenario Feature Measure: Area planted****Scenario Unit:** Acre**Scenario Typical Size:** 100**Scenario Cost:** \$1,537.00**Scenario Cost/Unit:** \$15.37**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	\$15.37	100	\$1,537.00